IASOA RWG

September 20 2017

- Intro/Welcome Back! (Cox) – 10 min
- Update on D-ICE (Cox, Morris) – 10 min
- Update on Summit radiation measurements (McComiskey) – 10 min
- Progress on pan-Arctic radiation paper (Cox) - 10 min
- Update on Barrow snow paper, post-pub developments (Cox) - 10 min
- Prioritizing the WG for the coming year (Cox) - 10 min

D-ICE

Based on recommendations from the BSRN CCIWG meeting in Canberra, Australia, April 2016:

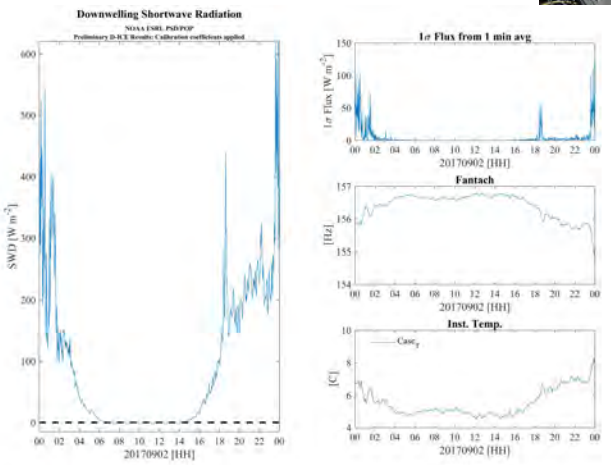
The De-Icing Comparison Experiment, D-ICE

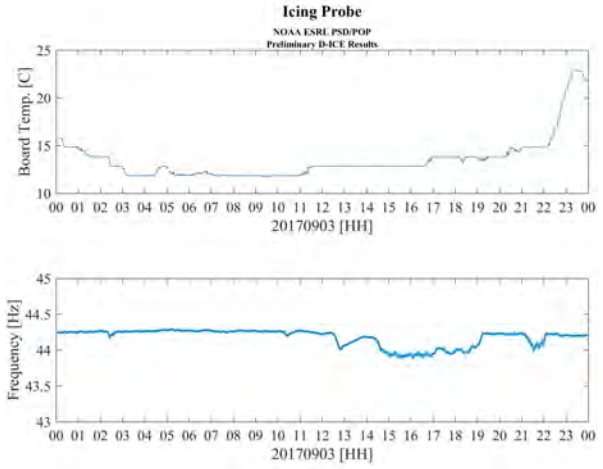
Measure and evaluate a full annual cycle of radiative fluxes suitable for assessing the current state of ventilation technology designed for maintaining stable, research-grade data that is mitigated for ice contamination at high-latitudes, and make recommendations for how such systems can be effectively deployed to autonomous and attended field stations.

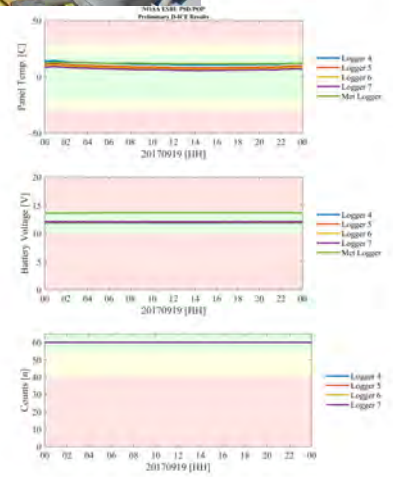
D-ICE

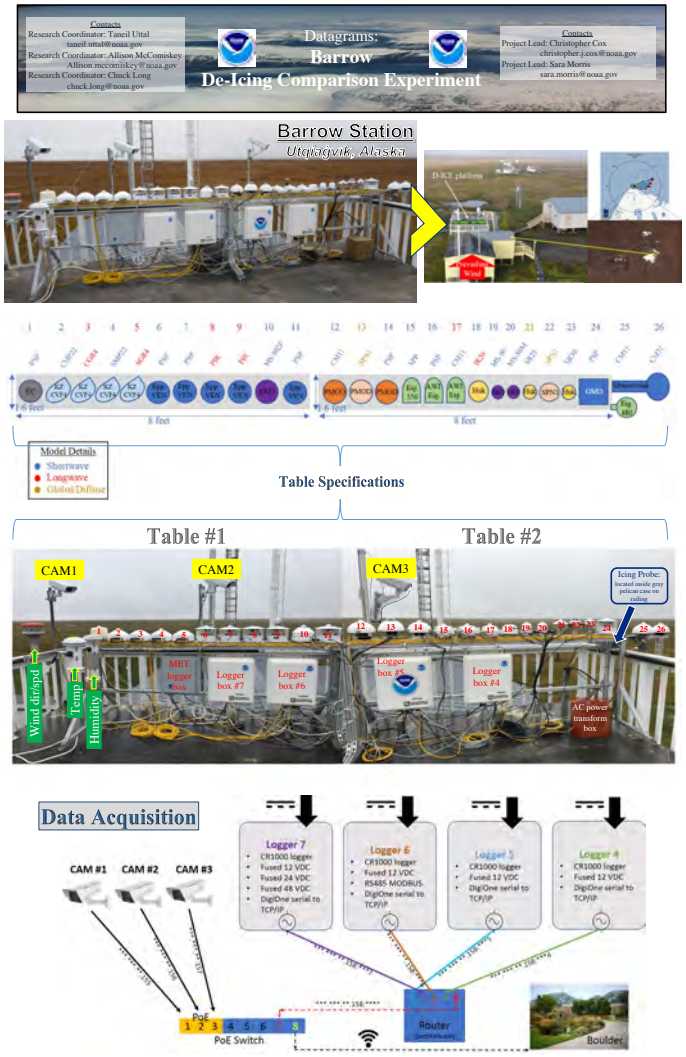
- Winter 2016-2017: Identifying partners, soliciting contributions, planning
- April 2017: Bench test 1: Radiometers (n=26)
- June 2017: Calibration of radiometers at ESRL
- June 2017: Bench test 2: Ventilators
- July 2017: Bench test 3: Radiometers + Ventilators
- July 2017: Shipping to Barrow
- August 2017: Deployment
- September 2017: Campaign started

WEBSITE: https://www.esrl.noaa.gov/psd/arctic/d-ice/ BLOG: http://ciresblogs.colorado.edu/de-icing/







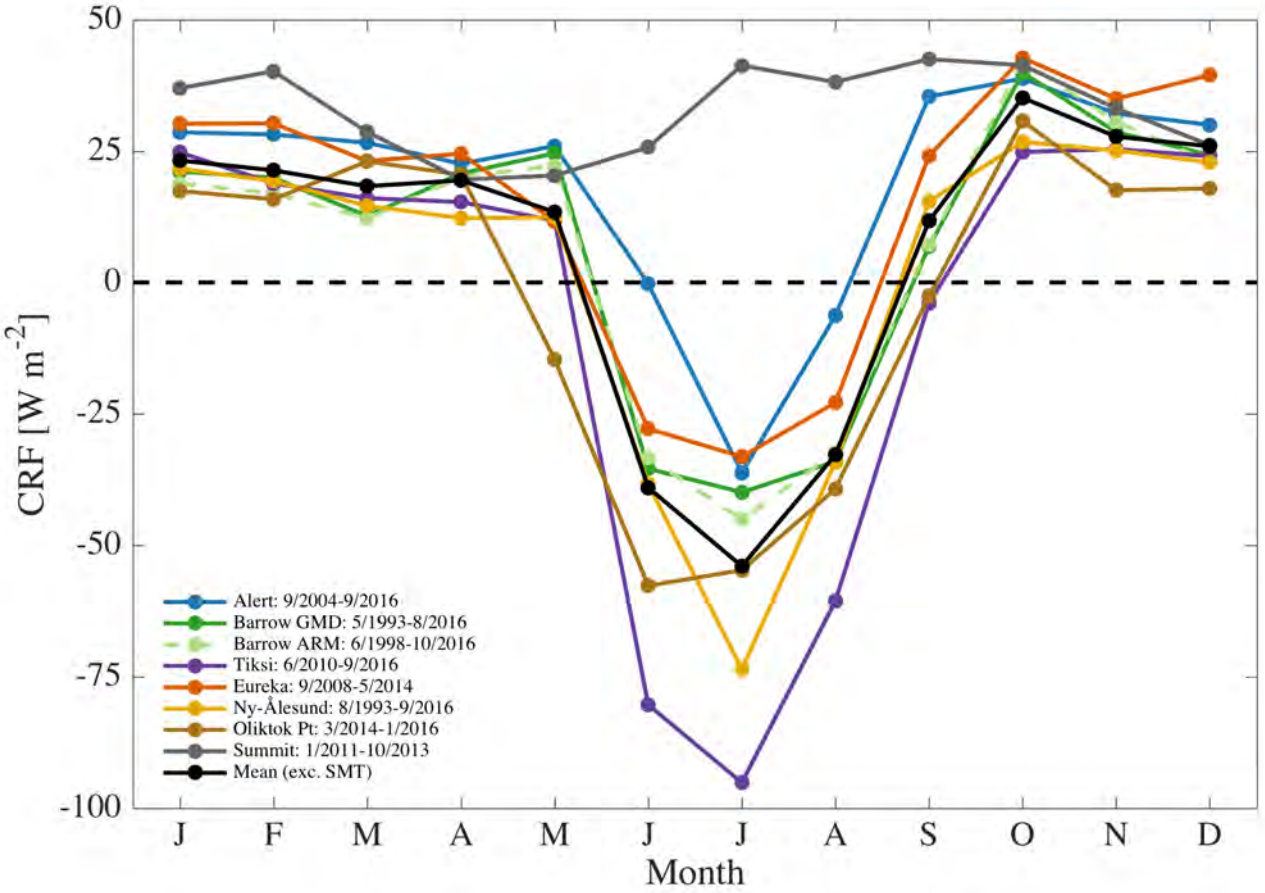


Thanks to all!

Chuck Long, Emiel Hall, Ross Burgener, Bryan Thomas, Taniel Uttal, Allision McComiskey, Jim Wendell, Johan Booth, Nick Lewis, Meghan Helmberger, Brian Vasel, Bernd Loose, Gert Konig-Langlo, Holger Schmithusen, Jorgen Konings, Christy Schultz, Andy Clarke, Kurt Knudesen, Steve Semmer, Ola Persson, Steve Oncley, Matt Martinsen, Tom Kirk, Julien Groebner, Victor Cassella, Dick Jenkins, Laurent Vuilleumier, Fred Helsel, Martin Stuefer, Mark Ivey, Jim Mather, David Oaks

Summit, Greenland update

Pan-Arctic CRF paper…



DRIVERS AND ENVIRONMENTAL RESPONSES TO THE CHANGING ANNUAL SNOW CYCLE OF NORTHERN ALASKA

CHRISTOPHER J. COX, ROBERT S. STONE, DAVID C. DOUGLAS, DIANE M. STANITSKI, GEORGE J. DIVOKY, GEOFF S. DUTTON, COLM SWEENEY, J. CRAIG GEORGE, AND DAVID U. LONGENECKER

On the North Slope of Alaska, earlier spring snowmelt and later onset of autumn snow accumulation are tied to atmospheric dynamics and sea ice conditions resulting in environmental responses.

Along the North Slope of Alaska (NSA), the annual cycles of environmental variables including wildlife behavior (e.g., Divoky et al. 2015; Liebezeit et al. 2014), biogeochemical cycles (e.g., Rhew et al. 2008; Sweeney et al. 2016; Zona et al. 2016), hydrology and hydroecology (e.g., Prowse et al. 2006), and vegetation (e.g., Bhatt et al. 2013) vary annually in response to seasonal warming and cooling of the surface, subsurface, and atmosphere. The timing of snow disappearance each spring influences the amount of solar radiation absorbed at the surface during May and June, and the associated variations in the net surface energy budget propagating downward through the subsurface affecting soil temperatures (e.g., Romanovsky et al. 2002; Westermann et al. 2009) and upward through the atmosphere, affecting air temperature and stability (e.g., Persson et al. 2002). Thus, the annual variability in the timing of snowmelt and length of the snow-free season significantly impact the Arctic terrestrial system as a whole.

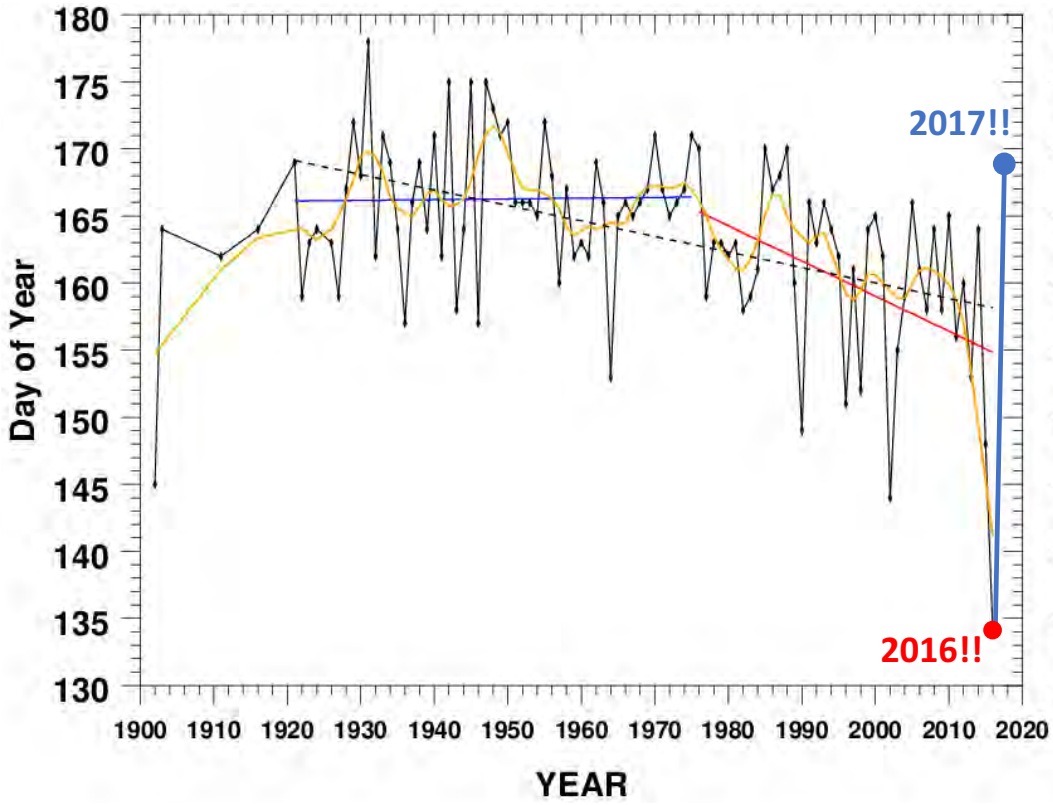
AFFILIATIONS: COX—Cooperative Institute for Research in Environmental Sciences, and Physical Sciences Division, NOAA/Earth System Research Laboratory, Boulder, Colorado; STONE—Science and Technology Corporation, and Global Monitoring Division, NOAA/Earth System Research Laboratory, Boulder, Colorado; DOUGLAS—United States Geological Survey, Alaska Science Center, Juneau, Alaska; STANITSKI—Global Monitoring Division, NOAA/Earth System Research Laboratory, Boulder, Colorado; DIVOKY—Friends of Cooper Island, Seattle, Washington; DUTTON, SWEENEY, AND LONGENECKER—Cooperative Institute for Research in Environmental Sciences, and Global Monitoring Division, NOAA/Earth System Research Laboratory, Boulder, Colorado; GEORGE—Department of Wildlife Management, North Slope Borough, Utqiaġvik, Alaska
CORRESPONDING AUTHOR: Christopher J. Cox, christopher.j.cox@noaa.gov

The abstract for this article can be found in this issue, following the table of contents.
DOI:10.1175/BAMS-D-16-0201.1

A supplement to this article is available online (10.1175/BAMS-D-16-0201.2)

In final form 19 May 2017

Barrow, Alaska
Date of the disappearance of snow 1902-2017



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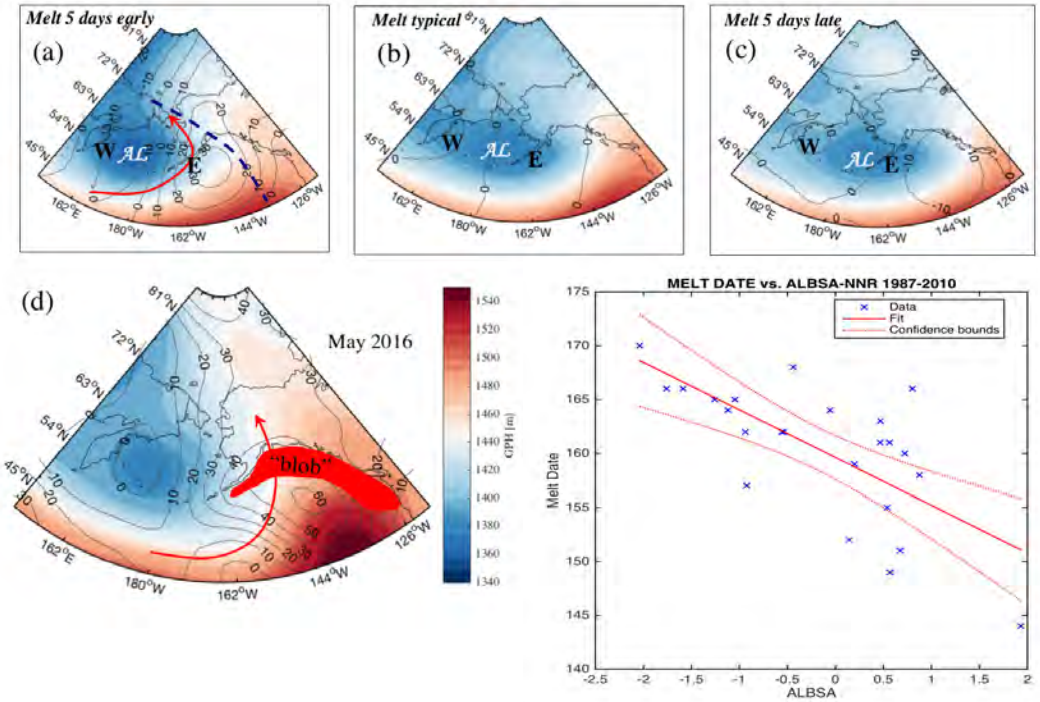
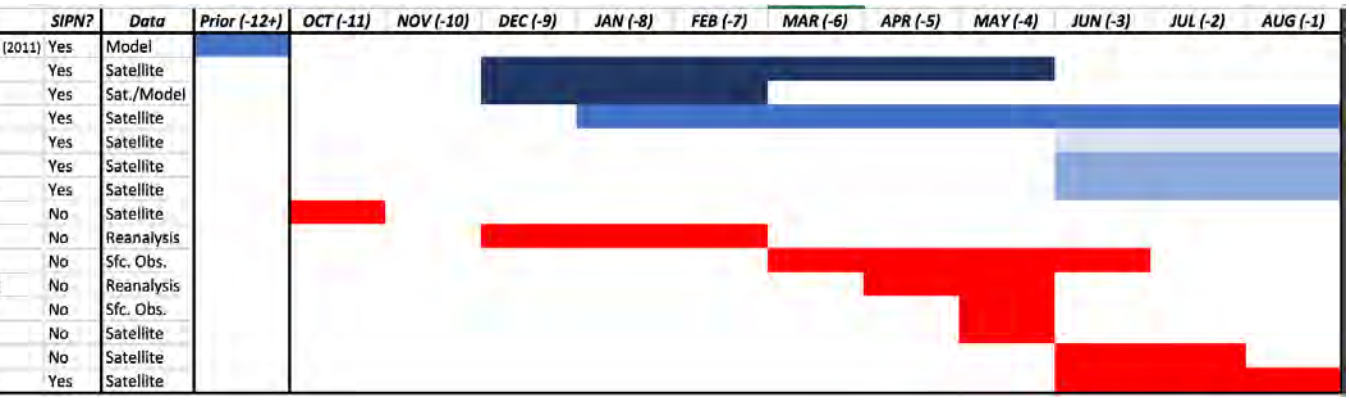
- Developing a 4-pt climate index that captures the juxtaposition of the depth/zonal position of the Aleutian Low + its meridional dipole relative to the Beaufort High
- ”Aleutian Low Beaufort Sea Anomaly” **ALBSA**
- Purpose: Forecast conditions supporting advection from the North Pacific over AK
  - ***E.g., these patterns foreshadowed 2015, 2016 and 2017***
- Tested as a predictor for the timing of snow melt
  - Other plausible uses: wildfire/hydrological outlook, sea ice pre-conditioning



Proposed empirical-statistical models for September minimum sea ice extent

e.g., "Sea Ice Prediction Network" (SIPN)

Type	Team	Reference	SIPN?	Data
Sea Ice - Trend	UW, Blanchard-Wrigglesworth	Blanchard-Wrigglesworth (2011)	Yes	Model
Sea Ice - Dynamical	U. Tokyo., Kimura et al.	Kimura et al. (2013)	Yes	Satellite
Sea Ice - Dynamical	McGill U., Tremblay et al.	Williams et al. (2016)	Yes	Sat./Model
Sea Ice - Trend	AWI, Ionita & Grosfeld	Ionita et al. (2008, 2014)	Yes	Satellite
Sea Ice - Albedo	U. Reading, Schroader	Schroeder et al. (2014)	Yes	Satellite
Sea Ice - C/M/E	Lamont, Yuan et al.	Yuan et al. (2016)	Yes	Satellite
Sea Ice - C/M/E	UCLA, Kondrashov	Kondrashov et al. (2015)	Yes	Satellite
LW Cloud Forcing	NASA, Taylor	Taylor et al. (2015)	No	Satellite
LW Cloud Forcing	SSEC, Letterly et al.	Letterly et al. (2016)	No	Reanalysis
LW/SW Cloud Forcing, Advection	PSD, Cox et al.	Cox et al. (2016)	No	Sfc. Obs.
LW/SW Cloud Forcing, Advection	Stockholm U., Kapsch et al.	Kapsch et al. (2013, 2014)	No	Reanalysis
LW Forcing, Synoptics	PSD, Persson	Persson (2012)	No	Sfc. Obs.
SW Cloud Forcing	EWU, Choi et al.	Choi e tal. (2014)	No	Satellite
SW Cloud Forcing	CU, Kay et al.	Kay et al. (2008)	No	Satellite
SW Cloud Forcing	U. Aukland, Zhan et al.	Zhan and Davies (2017)	Yes	Satellite



Are there stakeholders interested in statistical forecasts weeks to months for sea ice conditions and snow cover?

- Regional climate indices
- Empirical-statistical models

Prioritizing RWG this year…